UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/450,768 | 11/30/1999 | OSAMU KUBONIWA | MA-385-US | 8157 |

21254 7590 05/07/2003

MCGINN & GIBB, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

| EXAMINER |
|---|
| SWICKHAMER, CHRISTOPHER M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2697 | 8 |

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/450,768 | Applicant(s) KUBONIWA, OSAMU |
|---|---|---|
| | Examiner Christopher M Swickhamer | Art Unit 2697 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 April 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

1. This Office Action is in response to the amendment filed on 4/15/03. The examiner approves the new abstract. Amended claims 1-12 have been entered. Claims 13-20 have been added. Claims 1-20 are pending. Currently no claims are patentable.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (USP 6,259,708) in view of Kaplan (USP 6,141,339). Referring to claim 1, Cheng discloses an asymmetrical digital subscriber line (ADSL) system for transferring an analog audio signal of an analog communication equipment and high speed digital data of a high speed digital data equipment provided on the side of a subscriber, from and to a station, through one subscriber line (Fig. 1, abstract, col. 1, lns. 15-30), comprising: an apparatus on the subscriber side in which an analog audio signal of the analog communication equipment is converted into a digital audio signal (Fig. 2, col. 4, lns. 65-col. 5, lns. 5), said subscriber side apparatus comprising a DSL modem (line concentrator) to concentrate the digital audio signal together with the high-speed digital data (col. 2, lns. 8-55), and supplied to the subscriber line after being modulated by a first ADSL modem (Fig. 1), while after a signal received from the station through the subscriber line

is demodulated by the first ADSL modem (Fig. 1), the digital audio signal is converted into an analog audio signal and supplied to the analog communication equipment (col. 5, lns. 55-65), and at the same time high-speed digital data is supplied to the high-speed digital data equipment (Fig. 1, col. 2, lns. 25-40); and an apparatus on the station side in which a signal received from said apparatus on the subscriber side through the subscriber line is demodulated by a second ADSL modem (Fig. 1), thereafter the digital audio signal is converted into an analog audio signal, which is supplied to an analog telephone network (col. 5, lns. 25-35), and at the same time high-speed digital data is supplied to a high-speed digital data network (col. 5, lns. 20-25), while an analog audio signal of the analog telephone network is converted into a digital audio signal, said station side apparatus comprising a DSL modem (line concentrator) to concentrate the digital audio signal together with high-speed digital data of the high-speed digital data network (col. 2, lns. 8-40), and supplied to the subscriber line after being modulated by the second ADSL modem (Fig. 1). Cheng does not expressly disclose combining the voice and data using time division, and further does not disclose converting the voice and data into ATM cells in the line concentrator, the ATM cells having destination addresses attached. Kaplan discloses a system wherein said apparatus at the residence (subscriber side) and at the service node (station side) convert each digital audio signal as well as each high-speed digital data into asynchronous transfer mode (ATM) cells in each ATM interface (line concentrator) which would inherently attach each destination address to the ATM cells (Fig, 2, col. 3, lns. 40-49, col. 4, lns. 20-43, col. 5, lns. 22-35). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be

transmitted. Specific time slots would have to be allocated to transmit the different cells. The system of Cheng could add ATM functionality by adding the ATM interface to convert the incoming voice and data into ATM cells, and then using the ADSL modem to transport the cells to the central office, where the cells are converted back to their respective former data types for transport over different networks, such as an ATM network or a POTS network. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the voice over DSL technology of Cheng, with the ability to convert from ATM at the subscriber and station side over a single DSL line. One of ordinary skill in the art would have been motivated to do this since ATM can be used to carry a variety of desirable communication services over DSL, such as voice, data, faxes and video (col. 3, lns. 25-40).

- Referring to claim 2, Cheng discloses an ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with the high-speed digital data by time division (Fig. 1). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 3, Cheng discloses an ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and said apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, attach each destination address to the ATM cells in the ATM interface (line concentrator), and concentrate the digital

audio signal together with the high-speed digital data (see reference to claim 1, col. 2, lns. 25-40).

- Referring to claim 4, Cheng discloses an ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with high-speed digital data by time division (see reference to claim 1, Fig. 1, col. 2, lns. 25-40), and said apparatus on the subscriber side and apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, which would inherently attach each destination address to the ATM cells in the ATM interface (line concentrator), and concentrate the digital audio signal together with the high-speed digital data (see reference to claim 1, col. 2, lns. 8-55).

- Referring to claim 5, Cheng discloses an ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the first ADSL modem (Fig. 1, col. 2, lns. 25-55). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 6, Cheng discloses an ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog

communication equipment into each digital audio signal and concentrates the digital audio signal together with high-speed digital data by time division (col. 2, lns. 8-55), and said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the ADSL modem (Fig. 1, col. 2, lns. 8-55). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 7, Cheng discloses an asymmetrical digital subscriber line (ADSL) system for transferring an analog audio signal of an analog communication equipment and high speed digital data of a high speed digital data equipment provided in an apparatus on a subscriber side, from and to an apparatus on a station side, through one subscriber line (abstract, Fig. 1, col. 2, lns. 8-55), comprising: said apparatus on the subscriber side comprises an analog-to-digital/digital-to-analog (AD/DA) converter for converting an analog audio signal of the analog communication equipment into a digital audio signal or converting a digital audio signal into an analog audio signal (Fig. 2), to supply the same to the analog communication equipment, and supplying the high-speed digital data to the high-speed digital data equipment; a DSL modem (line concentrator) for concentrating the digital audio signal and the high-speed digital data; and a first ADSL modem for modulating the digital audio signal and the high-speed digital data and supplying the modulated signal to the subscriber line (col. 2, lns. 8-55), and demodulating a modulated signal received from the station side through the subscriber line (Fig.

1); said apparatus on the station side comprises a second ADSL modem for demodulating the modulated signal received from said apparatus on the subscriber side through the subscriber line and modulating a digital audio signal and high-speed digital data to be supplied to the subscriber line (Fig. 1); and a DSL modem (line concentrator) for supplying the digital audio signal modulated by said second ADSL modem to an analog telephone network as well as supplying the high-speed digital data to the high-speed digital data network, and concentrating the digital audio signal from the analog telephone network and the high-speed digital data from the high-speed digital data network (col. 5, lns. 15-32), then to send the digital audio signal together with the high-speed digital data to said first ADSL modem (Fig. 1). Cheng does not expressly disclose wherein said apparatus on the subscriber side and said apparatus on the station side convert each digital audio signal and the high-speed digital data into asynchronous transfer mode (ATM) cells in each respective line concentrator and attach a destination address to the ATM cells. Kaplan discloses a system wherein said apparatus at the residence (subscriber side) and at the service node (station side) convert each digital audio signal as well as each high-speed digital data into asynchronous transfer mode (ATM) cells in each ATM interface (line concentrator) and attach each destination address to the ATM cells (Fig, 2, col. 3, lns. 40-49, col. 4, lns. 20-43, col. 5, lns. 22-35). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells. The system of Cheng could add ATM functionality by adding the ATM interface to convert the incoming voice and data into ATM cells, and then using the ADSL modem to transport the cells

to the central office, where the cells are converted back to their respective former data types for transport over different networks, such as an ATM network or a POTS network. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the voice over DSL technology of Cheng, with the ability to convert from ATM at the subscriber and station side over a single DSL line. One of ordinary skill in the art would have been motivated to do this since ATM can be used to carry a variety of desirable communication services over DSL, such as voice, data, faxes and video (col. 3, lns. 25-40).

- Referring to claim 8, Cheng discloses an ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converters corresponding to a plurality of analog communication equipment; and said ATM interface (line concentrator) in said apparatus on the subscriber side concentrates each digital audio signal converted by the plurality of AD/DA converters, together with the high-speed digital data, by time division (Fig. 2, col. 2, lns. 8-55). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 9, Cheng discloses an ADSL system as set forth in Claim 7, wherein said ATM interface (line concentrators) in said apparatus on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells in the ATM interface (line concentrators), attach each destination address to the ATM cells

(see reference to claim 1) and concentrate the digital audio signal together with the high-speed digital data (col. 2, lns. 8-55).

- Referring to claim 10, Cheng discloses an ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment, and said ATM interface (line concentrators) in said apparatus on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells, attach each destination address to the ATM cells in the ATM interface (line concentrator), and concentrate the digital audio signal together with the high-speed digital data (see reference to claim 1, Fig. 2, col. 2, lns. 8-55).

- Referring to claim 11, Cheng discloses an ADSL system as set forth in Claim 7, wherein said ATM interface (line concentrators) in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem (see reference to claim 1, Fig. 1., col. 2, lns. 8-55). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 12, Cheng discloses an ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment (Fig. 1), and said

ATM interface (line concentrators) in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem (col. 2, lns. 8-55). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 13, Cheng discloses an ADSL system as set forth in Claim 1, wherein each said first and second ATM interface (line concentrator) comprises an ATM cell converter, and wherein individual destination addresses are attached to each ATM cell (see reference to claim 1).

- Referring to claim 14, Cheng discloses An ADSL system as set forth in Claim 7, wherein each said first and second ATM interface (line concentrator) comprises an ATM cell converter, and wherein individual destination addresses are attached to each ATM cell (see reference to claim 1).

- Referring to claim 15, Cheng discloses a method of transferring an analog audio signal over an asymmetrical digital subscriber line (ADSL) containing high-speed digital data (Fig. 1, col. 2, lns. 8-55), comprising: providing an apparatus on a subscriber side of the network comprising an analog audio signal of an analog communication device and high-speed digital data of a high-speed digital data device (Fig. 1), comprising: converting the analog audio signal into a digital audio signal (col. 4, lns. 65-col. 5, lns. 5); modulating said DSL data stream (ATM

cell string) with a first ADSL modem (Fig. 1); and transmitting said modulated DSL data stream (ATM cell string) signal to the subscriber line; and receiving the DSL data stream (ATM signal) from said subscriber side into an apparatus on the station side (col. 2, lns. 8-55), comprising: demodulating said DSL data stream (ATM signal) with a second ADSL modem; converting said concentrated digital audio signal into an analog audio signal (col. 5, lns. 15-35); transmitting said analog audio signal to an analog telephone network; and transmitting said concentrated high-speed digital data to a high-speed digital network (col. 5, lns. 15-35). Cheng does not expressly disclose converting each digital audio signal and each high-speed data into asynchronous transfer mode (ATM) cells in a line concentrator; attaching each destination address to each ATM cell; concentrating said converted digital audio signals together with said converted high-speed digital data into an ATM cell string signal using time division. Kaplan discloses a system wherein said apparatus at the residence (subscriber side) and at the service node (station side) convert each digital audio signal as well as each high-speed digital data into asynchronous transfer mode (ATM) cells at each ATM interface (line concentrator) and attach destination addresses to the ATM cells before being modulated by an ADSL modem (Fig, 2, col. 3, lns. 40-49, col. 4, lns. 20-43, col. 5, lns. 22-35). Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells. The system of Cheng could add ATM functionality by adding the ATM interface to convert the incoming digital audio and digital data into ATM cells at an ATM interface, and then using the ADSL modem to transport the cells to the central office, where the

cells are converted back to their respective former data types for transport over different networks, such as an ATM network or a POTS network. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the voice over DSL technology of Cheng, with the ability to convert from ATM at the subscriber and station side over a single DSL line. One of ordinary skill in the art would have been motivated to do this since ATM can be used to carry a variety of desirable communication services over DSL, such as voice, data, faxes and video (col. 3, lns. 25-40).

- Referring to claim 16, Cheng discloses the method of claim 15, further comprising: dividing each digital audio signal and each high-speed digital data into fixed time slots; and supplying said divided digital audio signals together with said high speed digital data to said subscriber line after modulation by said first ADSL modem (col. 2, lns. 8-55).
Since the system combines two types of data streams together using ATM, the system would inherently use some type of time division to combine the packets because the ATM cells are of a fixed length and would each require a certain amount of time to be transmitted. Specific time slots would have to be allocated to transmit the different cells.

- Referring to claim 17, Cheng discloses the method of claim 15, further comprising: extracting a payload from said ATM cell string (see reference to claim 15) and converting said extracted digital audio signals into analog audio signals (Fig. 2).

- Referring to claim 18, Cheng discloses the method of claim 15, wherein said concentrating said converted digital audio signals together with said converted high-speed digital data using time division comprises multiplexing said signals and said data in a multiplexer (col.

2, lns 8-15). Any device that combines two signals to form one signal is a multiplexer. The DSL modem of Cheng provides this functionality.

- Referring to claim 19, Cheng discloses the method of claim 15, wherein said concentrating said converted digital audio signals together with said converted high-speed digital data comprises modulating said ATM cells received from said ATM interface (line concentrator, see reference to claim 15, col. 2, lns. 8-55).

- Referring to claim 20, Cheng discloses the method of claim 15, further comprising: transmitting a DSL data stream, an ATM cell string, having an address attached for the analog telephone network by said second ATM interface (line concentrator) to said analog telephone network; and transmitting a DSL data stream, an ATM cell string, having an address attached for the high-speed digital network to a high speed digital telephone network (col. 5, lns. 15-35).

### *Response to Arguments*

4. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- The International Engineering Consortium, www.iec.org, *Asymmetric Digital Subscriber Line (ADSL).*
- The International Engineering Consortium, www.iec.org, *Voice-over-Digital Subscriber Line (VoDSL) Service-New Revenue from Existing Infrastructure.*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M Swickhamer whose telephone number is (703) 306.4820. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703) 305.4798. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872.9314 for regular communications and (703) 872.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305.3900.

CMS
May 1, 2003

RICKY NGO
PRIMARY EXAMINER